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ABSTRACT

The success and rewards of working with educational audiotape cassettes are discussed, based in part on student responses to questionnaires from an earlier study of four Open University courses. Attention is drawn to characteristics of tapes which make them valuable for education. Both the product and the processes of making them are discussed, and distinctions are made between cassettes and other media used at the Open University. Following background information on data sources for the paper, both quantitative and qualitative data gathered from academics, producers, and students are summarized. The concepts of control, informality, and flexibility are used as a framework to examine the educational value of audiocassettes, and four categories of use of cassettes in Open University courses are described: back-up programs, resource material, essential teaching, and additional lectures. Eleven references are listed. (LMM)

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I.E.T. Paper on Broadcasting No. 175

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Audio-Cassettes in Higher Education

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Abstract

This paper describes the main characteristics of audio-cassettes, and discusses how these may be exploited in an educational context. Some brief examples of usage are given but the paper emphasises that as yet there are no absolute rules about 'the best way' to use the medium.

Audio-Cassettes in Higher Education

"Meet you on Cassette!"

Introduction

"Meet you on cassette!" may seem a rather obscure and romantic slogan to attach to a paper which goes on to discuss a range of ways audio-cassettes may be used in education. These words encapsulate however a sense of immediacy and directness which characterizes many cassettes and may go some way to explaining their value for teaching and learning. Cassettes have been an undoubted success at the Open University and are being increasingly employed on the University's multi-media courses. Perhaps most encouragement has come from students themselves who write in "it was like a personal tutorial" or such similar words. Later I shall describe the ways the University has used audio-cassettes, but before I do this I want to look more closely at their success and at the various rewards of working with them. In this way, I hope to make it clear what it is about the medium that makes it valuable for education. As I do so, I shall draw attention to certain characteristics of audio-cassettes, comment both upon the product and the processes of making them and make a number of distinctions between cassettes and other media the Open University uses. I shall discuss how a multiplicity of factors may influence how users view and respond to instructional media, complex factors, partially explaining perhaps why general laws about their use, laws derived from theory, are proving difficult to establish.

Background to research

The research behind this paper began in 1979. Students studying four Open University courses were contacted by questionnaire in order that we might look more closely at their use of and attitudes to audio-cassette work. One course, the Science Foundation Level Course (S101), used radio as well as audio-cassettes, which allowed us to invite students' comparisons and distinctions between the two media. The three other courses chosen were at post foundation level, each used audio-cassettes in a very individual way but none of them used radio. In this paper, I draw upon students' responses to the closed and open ended questions put to them, but for detailed accounts of Methodology and findings relating to this part of my study, I would refer you to my two final reports.(1)

A second input to this paper reflects a concern about the sudden and continuing growth in the use of audio-cassettes and the need to review how and why this was taking place. It is evident[2] that the number of audio-cassettes being made for Open University courses has more than doubled over the last two years. In 1981 68 courses used them, and some 184 audio-cassettes were sent out to students; a projected 86 courses will be using them in 1982.

To collect this information I surveyed the range of ways course teams were using audio-cassettes in 1980 and interviewed course-team members. To disseminate these research findings, I developed an audio-cassette package, which aims to clarify the characteristics of the medium and to illustrate current usage. The package draws upon the information collected earlier from students as well as upon faculty and producer perspectives on audio-cassette work. I shall occasionally refer to examples included in this package in this paper.

Quantifiable data, What do we mean by success?

Success may be looked at from a variety of angles, indeed the evidence I have collected suggests that it means different things to different people. However, underlying the expressed attitudes of three groups of people involved in their use - academics, producers and students - is a manifest enthusiasm for the medium. As I mentioned earlier, more Open University courses are employing audio-cassettes, and, aside from expressions of keenness, we have quantifiable data from students, showing that most of them actually listen to the cassettes they are sent. These data may be favourably contrasted with students' use of Open University television and radio material. There are peaks and troughs here of course, but overall, most students neither listen so frequently to broadcasts nor rate them as highly as other media. Hans Grundin[3] for example, when discussing the unfavourable timings of many Open University broadcasts, points out that students in many cases could watch or listen at "inopportune" hours but implicitly do not consider it worth making the necessary adjustment to their life-style to do so. My own study[1] of four courses which used audio-cassettes and other media showed that students both listened in large numbers and gave a consistently high ranking to their cassette as a course component; they placed it only after their printed main core texts and their continuous

assessment work as "a valuable means of learning". Television on the other hand was ranked in fifth place behind tutorial meetings, and radio, on the one course it was used, was ranked behind all other components. Such data oversimplifies the issue, of course, as it ignores the different objectives each medium was designed to achieve and the high value placed, albeit by a minority of students, on these different objectives. For example, that superficially 'poor' radio rating may, from another perspective, be judged a success, as it was anticipated, even engineered by course design strategy. The decision was to use radio and audio-cassettes to perform different pedagogic functions. Radio, it was argued, was a cheap and efficient means of providing background material to the core texts, adding a new perspective upon the theory discussed in them, and was useful for presenting general study advice. The objectives of these programmes were broadly based and directed at the overall aims of the course; they emphasised affective functions, such as increasing students' awareness, appreciation and motivation. Audio-cassettes, on the other hand, were claimed to have characteristics which lent themselves to task-orientated teaching, in particular they were gauged to be flexible and convenient for students to use. So they were designed to perform very specific functions and focussed upon achieving cognitive objectives; they aimed, for example, at encouraging students to analyse and evaluate material or at practicing certain skills. What is interesting is students' response to this strategy. It was quite clear that the minority of students who valued radio highly did so for remarkably similar reasons to those who viewed it with disfavour. Each group commented about the relevance of radio material but perceived its relevance to their learning differently. Those who rated broadcasts highly perceived it as 'relevant' to higher level learning that they should be expected to explore the wider significance of the facts and concepts other course materials presented. Those who rated broadcasts as 'irrelevant' appeared to be narrower in their outlook and tended to be more concerned with short-time goals, related for example to the details of their current reading or to their assignment work.

Qualitative data

In order to look more closely at what is meant by 'success' in relation to audio-cassettes, I want to discuss the qualitative data I collected from academics, producers and students. These are sources I hope to tap much further in future studies but already they have provided certain insights into why the medium is increasingly being viewed with high regard. I find it helpful to use three concepts to examine why audio-cassettes are seen to be valuable for teaching and learning. These are 'control', 'informality' and 'flexibility', and I shall discuss each of them in turn from different perspectives.

Control

Comments from academics about 'good cassettes' often emphasise the degree to which they are involved in their design and execution. At the most personal level, this means that an academic may follow up an idea and prepare a draft tape either independently or in collaboration with a producer, much as he or she might prepare a draft text or lecture. At one level beyond this, academic colleagues are able to comment upon the draft product, (make suggestions about its accuracy or clarity of presentation for example) knowing that amendments are feasible. Tony Bates[5] has pointed out that academic group approval is often a 'charade' in relation to broadcast material. The difference between a programme outline and a "preview version" in the case of an Open University T.V. programme is immense because of the complexity of T.V. production. Academics then can only judge the value of the "finished" product. Because of the high cost of making changes there is very little the academics can do if they don't like a programme, once it has reached a preview stage. Tony Bates has also discussed the varying degree of personal interest an academic may take in broadcasting. It is evident that some broadcast programmes represent a fruitful and collaborative enterprise undertaken by producer and academic. Nevertheless, academics often sense a lack of control over what actually goes into a television programme and this along with constraints of time and cost may contribute to their relative non-involvement.

Comments from producers about successful audio-cassettes can be fascinating. For example, there is sometimes an implicit suggestion that the end product has organic properties, that cassette communication is direct, personal and insistant and thus in some ways manipulative. One quotation may help to illustrate my point; "I can imagine students sitting down, listening and really using this tape ..... I feel something when I hold it, and its not a feeling I ever had about any radio programmes I made". Later this same producer was apparently rather startled at the thought that students tend to use cassettes as they want to. "Does that mean they don't use them as we mean them to?" he asked.

This lead me to the student perspective on control, for ultimately of course in a distance learning system they do decide the how, when and whys of cassette usage. Most students speak well of the convenience of audio-cassettes. Convenience encompasses their decisions about where they listen - often for example in the room where they od most of their studying, but sometimes "in the car, on my way to work"; when they listen - for example, "straight away to get the gist of their contents", or, more often, when they judge or are told it is more relevant to their study of a particular section of a course; and how they listen - for example "once straight through", or "once, but I stop and start the tape several times."

The control they exercise means cassettes are used according to individual preference and perceived need. I shall return to this point later when I discuss 'flexibility' - for the moment I would just like to contrast students' control over their use of audio-cassettes with that of their control over when and where they use broadcast media. Transmission timings are of course fixed, and so programmes may well present content ahead of or behind students' coverage of related material. It is observable too that in most homes television sets are positioned for family viewing and it may be that this does not correspond well with an ideal study location. It is possible that both these features affect students' attitudes to the different media and indeed go some way to explaining the success of audio-cassettes.

Informality

There are two perspectives on informality I want to discuss. One focusses on the product, the other on the process of cassette making. First, let us look at the product. There are marked differences along the formal/informal dimension between the presentational styles of audio-cassettes and other media used at the Open University. It is something that students' themselves frequently comment upon when explaining why they value audio-cassettes. They tend to notice for example that: "she had such a friendly voice and was most encouraging". One student summed up the effect this had by saying "it's like having your tutor in the room with you". Informality, it seems, has an influence which is wide ranging but it may be summarised as facilitating the sense of participating in a piece of direct, immediate and personal communication. It may sound obvious to say that a characteristic of audio-cassettes is that they use sounds to communicate but it is likely to be significant that these sounds are, more often than not, those of the human voice. The human voice in contrast to a printed text can be modulated, "the correct and artistic use of pitch, pace, pause, phrasing, inflexion, tonal amount and quality" as Marash[6] describes it. Attempts to write informally in an educational context are clearly at a disadvantage here, indeed I would suggest they are often disfunctional rather than helpful. In my experience they can be confusing to read and can 'sound' patronising. It all depends on how students interpret them without audible clues. Students quite clearly felt that broadcast presentations were more formal and less direct than audio-cassette commentaries. Many attributed this to the necessary glossiness or to the professionalism of a mass media product; they might commend them on this score but perhaps felt less at ease with them as a study component. I have discussed elsewhere[7] and in more detail problems of using television for teaching adults.

Turning to the processes of cassette-making, it is evident that there are distinctions to be drawn between cassette production processes and those of programmes made for broadcasting. Again it may be that these different processes

influence the presentational styles of the product as much as conscious decisions to "go informal", or to use a more formal, perhaps more traditional approach. So, for example, many academics described a process of cassette making which allowed them considerable latitude. They explained how it is possible to rough out an idea for a cassette tape and to follow it through to a recording stage within a very short span of time - even during one morning in one instance. In this way, they claim, little impetus and enthusiasm is lost between stages and this is reflected in the finished commentary. These same academics also tended to favour recording tapes in a relatively relaxed and informal way, and were convinced that the more formidable attributes of 'clinical' studio work acted as a constraint upon those presenting the commentary. One described very formal recording processes when applied to cassette work as "a typical case of over-resourcing what is, at its most effective, a low-cost product". By implication the processes of recording broadcasts are identified as being much lengthier and more formal than those of cassette making. While it may be fairly argued that these are contingent rather than necessary conditions of the two processess, there is a considerable body of academic opinion sharing such a perspective which may in itself go some way towards actualising the hypothesis.

Flexibility

Cassette recorders have technical features which make them a very flexible medium to use. In particular they have an on-off switch (sometimes a pause button too), and re-wind and forward wind buttons. From a teacher perspective this means that a wide choice of teaching strategy is available, while, from the student end, that there is considerable freedom for them to listen to cassettes as they wish. Current technology is deficient in one major respect however and this does appear to frustrate students use of them; it is no easy matter to mark off where sections within one side of a tape begin and end, and this can lead to location problems for a student who wants to hear a particular part of a tape again, or who has stopped the tape in the middle of a programme. Counting devices provide a rough and ready guide but little more. Nevertheless, students evidently use considerable initiative in deciding how to listen to audio-cassette material. A general listening pattern has emerged from my studies but it is one which unfortunately tells us very little about the details of how students decide which parts they will 'skim through' or 'concentrate on', by replaying them. What we do know however, is that the vast majority listen no more than twice to each tape programme, either by replaying the whole section, stopping and starting as they see fit or by replaying parts within a section on a first hearing. Of special interest, is that most say they have no regular listening rules and do not, for example, rigidly follow tape directions as to when they should stop the tape and/or replay bits; rather they "play it by ear" and do what is convenient to themselves. This information, if it is related to the value students place on cassette work, suggests that students use cassettes flexibly so as to match their own goals, study habits and perceptions of learning and that they usually recognise these constraints rather than any 'imposed' upon them by teaching strategy. It is a grey area however, and one which I believe warrants much closer investigation. 9

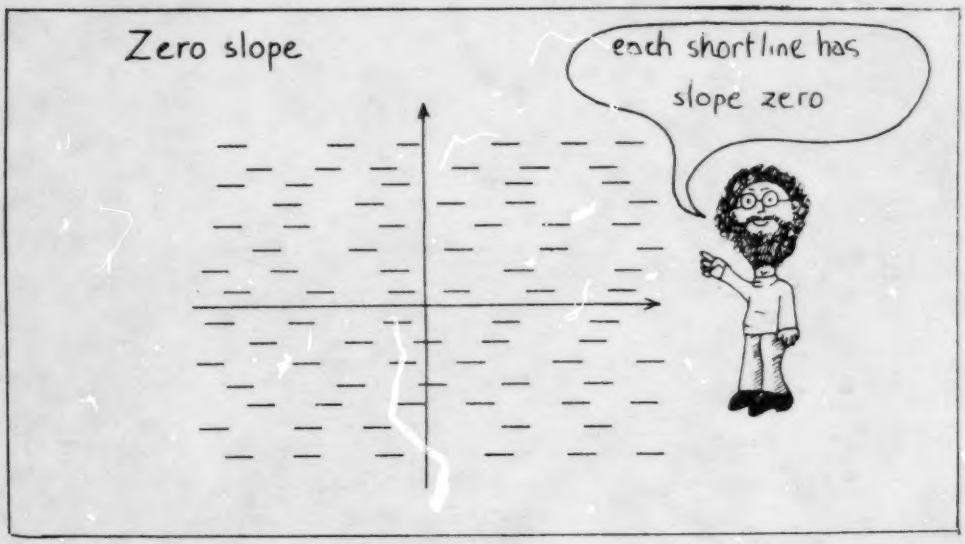
Ways cassettes have been used

How do Open University course designers exploit the flexibility, informality and directness of the medium? It is convenient to describe the ways cassettes have been used as falling into four groups - although these are not water-tight categories and often overlap. They are:

1) Essential teaching
2) Back-up programmes
3) Resource material
4) Additional lectures

To accompany each of these kinds of tape programmes, students are sent visual materials. These may be graphics, printed exercises or short notes, black and white photographs, or, turning to larger items, maps, colour slides or filmstrips with viewers, and rock samples. The total list is very lengthy and the items are used in a wide variety of ways; it depends largely on the teaching strategy adopted. The printed items too may look very different, ranging from a standard type text to cartoon-like graphics with hand-written key words and formulii. The latter are usually framed like a picture and, where they form a series, each works rather like a paragraph of print, containing one basic idea. Figure one below comes from an Open University Mathematics course (M203) and illustrates the approach.

Figure One



The graphics are carefully designed to lead the commentary and are laid out, despite their apparent casualness, to follow the natural reading movement of the eye. Their informality compliments the style of commentary and aims at humanising the learning task.

Accompanying visuals are usually essential ingredients in Group One type programmes; they often do more than provide a focus for students' attention while they listen to a commentary and usually have activities related to them. So, for example, students are sometimes asked to solve a problem in a stage-by-stage process using the visual materials to help them see relationships between their abstract tasks and real life. Sometimes students use the visuals to practice certain skills - perhaps identifying features on a map, in rocks or chemical solutions; sometimes to develop skills - for instance, the ability to interpret and present a variety of data in appropriate ways. The point of having a sound accompaniment to these materials is that students can perform their various tasks as they listen. It is undoubtedly an advantage when learning a practical skill where you need to use your hands and eyes, to be told by someone how to do it rather than to have continually to refer to a printed text. Careful design is obviously important where a combination of media are used for instruction. It is probably true of all cassettes that the commentary needs to be clear, carefully paced and in the right order for programmes to work efficiently, but this is particularly the case when cassettes invite students to participate actively, and do more than just listen and perhaps follow a lecturer's argument.

Participation by students, is a common feature of cassette programmes directed towards core teaching. The activities suggested range widely in nature and number, depending on the teaching strategy chosen and the objectives envisaged. For example, students' listening may be briefly interupted by the suggestion "consider this question for yourself before listening further", or more radically students may be interrupted to complete some calculations or scientific experimental work. Judiciously used, participatory work exploits to advantage several of the attributes of audio-cassettes: clearly it implies a use of the stop/start and replay technology of recorders, it exploits the power of the spoken word or of musical signals to encourage students to respond actively, and at its most sensitive it exploits the intimacy of the medium. One example may illustrate this latter point. A cassette was used to help students learn to draw diagrams. During the programme students were asked to draw their own diagram of a particular situation. They then listened to their tutor describing his thought processes as he tackled the same task. Thus stage-by-stage students were led through and able to compare processes of diagramming rather just reflect upon differences in the finished product. The programme illustrates that audio-cassettes lend themselves to a "teaching by example" strategy and also to personalised teaching.

In this instance it is possible that students who were unfamiliar with diagram drawing felt less overawed and thus less constrained[8] by their task as they tuned into their tutor's more private thinking world and shared his insights. It is possible too that in this way potential barriers to learning - barriers not just of distance but also of authority - between students and teachers were eased a little.

Programmes in Group Two often provide back-up to other media used on a course. So, for example, the audio-work may be linked with written or filmed case-study material - perhaps a documentary film which runs without academic intervention or other interruption to the natural flow of events - to help students to learn from it. We know from research[9] that students often find such films interesting but are not sure how to study with them. Cassettes can help them to analyse what they saw, or to consider how far the case-study demonstrated or conflicted with theory. In this group too, there are programmes which offer support and encouragement to students at critical points in the year, for example, to students who are beginning a course of study which is unfamiliar to them, or to students preparing for examinations.

Resource material, that is programmes in Group Three, can also range widely. They may be quite straightforward, containing, for example, an audio-glossary to show students how foreign words are pronounced, or perhaps a recording of a committee meeting to give students the sense of cut-and-thrust which takes place in debate. At a more sophisticated level students may hear recordings of real-life situations, perhaps children at work in the classroom, which they use as the basis for exercises in analysis.

In Group Four type programmes students hear lectures which generally aim to explore the wider significance of their studies and to stimulate further interests. I mentioned earlier how highly some students value radio programmes of a similar type, and suggested that they perceived learning in a broader way than their colleagues. Cassettes in this group aim to cater to their needs as well as to develop a more long-term and sophisticated view of learning in others.

I hope that it emerges from these brief descriptions and my earlier discussion that cassettes may be used for a variety of education purposes but that however they are used that there are several further practical decisions to be made. These relate to the special characteristics of the medium and how these may be exploited in a particular situation. They will take into account, in other words, the different details of context related to teaching and learning. So, for example, appropriate decisions will vary according to the subject matter

being taught, the teaching strategy chosen, the kinds of students using the material and the production processes involved. The decisions involved are likely to encompass presentational style and the degree of informality or formality for both commentary and any print support, the nature and amount of participation desirable and the amount of back-up students are judged to need. It is partly because individual situations are so different that different actions become appropriate and general advice is difficult to give.

Nevertheless, there have been a number of attempts at developing a theory of media and education which aimed at providing a firm basis for such decisions. The trend is now to argue that it is wrong-headed to try and establish general laws without first of all exploring and understanding the details of media usage[10]. So those burning and sensible sounding questions such as "when should I use audio-cassettes?", "how should I use audio-cassettes?", are not answered by this paper and indeed have led many researchers along dead-end trails. There have been attempts, for example, to prove that one medium was intrinsically more efficient at teaching than others; their results were inconclusive and have been criticised on methodological grounds, but they suggest that no one medium is innately superior to another. Other research work has focussed on establishing a single taxonomy of media, but again these have been criticised[11] for their inconsistency or for their bland lack of detail. The current trend towards investigating situations as well as 'media' per se, may look promising to teachers who have questionned the validity of truths known to researchers using a scientific methodology apparently removed from the real world of practice. It may be some time ahead however before a theory emerges that is cognizant of all the factors which influence learning, and whether such a theory, explaining the complex interrelationships of each factor, will be comprehensible in practical situations is another question.

This rather gloomy reflection upon media research does not mean the practicing teacher is bereft of information. It does not do justice to the insights which interim research work reveals, nor does it make proper reference to the truths known through intuition and experiences. Both sources contribute to and broaden the experience base from which principles of good practice may be derived. The Open University, for example, developed its guidelines about appropriate uses for television in its context from such a basis. Indeed, my own view is that the two sources are complementary and that the truths of intuition leading to notions of good practice have a validity equatable with those deduced by scientific methodology. I like to compare these principles of good practice with the maxims of equity in our legal system. Equitable maxims co-exist with, and may supercede, common or statute law and are principles used to guide decision-making according to notions of fairness to all; they lay a stress on context by making rigorous enquiry of the background of applicants,

laying down for example that "He who comes to Equity shall come with clean hands." I derive from this analogy both a confidence in current practices and a belief that there is not so much a conflict as a corrective tension between the two truth systems. It remains vital however that tried and tested principles of practice do not become ossified into laws. So, for example, in this paper I have briefly described a range of ways audio-cassettes can be used but I would emphasise that these approaches represent current thinking. It may be that because the ideas behind them are derived from experience with more traditional media that their use is too limited; audio-cassettes could perhaps be better exploited in education if a more radical approach were taken. The aims of this paper therefore have been to consider just some of the rewards of working with audio-cassettes to discuss the characteristics of the medium, and to outline ways in which these may be exploited. I hope in addition to encourage interest in the medium and perhaps generate new ideas about how they may be used in education.

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